



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/554,397	09/26/2006	Yoshitake Natsume	279648US0PCT	2754
22850 7590 11/23/2009 OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER HAN, KWANG S				
ART UNIT 1795		PAPER NUMBER		
NOTIFICATION DATE 11/23/2009		DELIVERY MODE ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com
oblonpat@oblon.com
jgardner@oblon.com

Office Action Summary

Application No.

10/554,397

Applicant(s)

NATSUME ET AL.

Examiner

Kwang Han

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 July 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 6, 8-11 and 15-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7, and 12-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB06)
Paper No(s)/Mail Date 1/19/06
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notes of Informal Patent Application
- 6) ☐ Other: _____

**NEGATIVE ELECTRODE FOR LITHIUM SECONDARY CELL, LITHIUM
SECONDARY CELL EMPLOYING THE NEGATIVE ELECTRODE, FILM
DEPOSITION MATERIAL B USED FOR FORMING NEGATIVE ELECTRODE, AND
PROCESS FOR PRODUCING NEGATIVE ELECTRODE**

Examiner: K. Han SN: 10/554,397 Art Unit: 1795 November 19, 2009

Election/Restrictions

1. Applicant's election with traverse of Group I, Claims 1-5, 7, and 12-14 in the reply filed on July 20, 2009 is acknowledged. The traversal is on the ground(s) that the Office did not consider the contributions of each invention as a whole and the contents of the claims interpreted in light of the description. This is not found persuasive because as the common technical feature as a whole, interpreted in light of the specification is a negative electrode for a lithium secondary battery having a thin film of silicon oxide for all the groups. As discussed in the original restriction requirement, this cannot be a special technical feature because it is taught in the prior art.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 6, 8-11, and 15-18 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement.

Priority

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

4. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 1, 2, 4, 5, 7, 12, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hara et al. (JP 2002-042809, machine translation) in view of Yamamoto et al. (US 2003/0054249).

Regarding claims 1, and 7, Hara is directed towards a lithium secondary battery (Abstract) comprised of a negative electrode [0013] having a thin film of silicon oxide on the surface of a collector [0016] but is silent towards the film being formed by vacuum vapor deposition or sputtering.

Yamamoto teaches a lithium secondary battery where a silicon oxide film layer is formed by vapor deposition and sputtering for an anode layer [0100, 0101]. It would have been obvious to one of ordinary skill in the art at the time of the invention to form the silicon oxide layer of Hara using vapor deposition or sputtering because Yamamoto teaches this as preferable methods to form an amorphous layer with homogeneous film quality and an even film thickness.

Regarding claim 2, Hara is silent towards the thickness of the anode layer. Yamamoto teaches the anode layer thickness may be between 30 to 300 microns [0099]. It has been held that where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); In re Woodruff, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990) (MPEP 2144.05)

Regarding claims 4 and 5, Hara discloses the value of x less than 2.0 [Abstract, 0009]. It has been held that where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); In re Woodruff, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990) (MPEP 2144.05)

Regarding claim 12, Hara is directed towards a fabricating method for a lithium secondary battery (Abstract) comprised of a negative electrode [0013] having a thin film of silicon oxide on the surface of a collector [0016] but is silent towards the film being formed by vacuum vapor deposition or sputtering.

Yamamoto teaches a lithium secondary battery where a silicon oxide film layer is formed by vapor deposition and sputtering for an anode layer [0100, 0101]. It would have been obvious to one of ordinary skill in the art at the time of the invention to form the silicon oxide layer of Hara using vapor deposition or sputtering because Yamamoto teaches this as preferable methods to form an amorphous layer with homogeneous film quality and an even film thickness.

Regarding claim 14, the silicon oxide layer of Hara in view of Yamamoto would inherently utilize a film forming material since a film is formed by a process of vapor deposition which also inherently provides a deposit to form the silicon oxide layer.

8. Claims 3 and 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hara et al. and Yamamoto et al. as applied to claims 1 and 12 above, and further in view of Shindo (US 5755940).

The teachings of Hara and Yamamoto as discussed above are herein incorporated.

Regarding claims 3 and 13, Yamamoto disclose vapor deposition and sputtering to form the silicon oxide layer but is silent towards the use of ion plating.

Shindo teaches ion plating as an equivalent method to sputtering and vacuum deposition to form a thin film layer which includes silicon oxide (4:44-5:8). It would have been obvious to one of ordinary skill in the art at the time of the invention to use ion plating to form the silicon oxide layer because Shindo teaches ion plating is an equivalent method to sputtering and vacuum deposition.

Contact/Correspondence Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kwang Han whose telephone number is (571) 270-5264. The examiner can normally be reached on Monday through Friday 8:00am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah-Wei Yuan can be reached on (571) 272-1295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. H./
Examiner, Art Unit 1795

/Dah-Wei D. Yuan/
Supervisory Patent Examiner, Art Unit 1795